

WHAT IS CLAIMED IS:

- 1 1. A system for increasing security screening efficiency comprising:
 - 2 a gateway between a non-sterile area and a sterile area;
 - 3 a screening queue for the sterile gateway;
 - 4 a tray slide positioned adjacent to the screening queue, wherein the tray slide
 - 5 comprises a sidewall and a support surface, wherein the tray slide is operable to deliver a
 - 6 tray to a screening subject in the screening queue.
- 1 2. The system of claim 1, further comprising a tray conveyance coupled to the tray slide.
- 1 3. The system of claim 1, wherein the gateway comprises a detection apparatus, the
2 detection apparatus adapted to detect items prohibited from entering the sterile area.
- 1 4. The system of claim 3, wherein the screening queue is defined by a direction of travel,
2 the direction of travel operable, when followed, to direct passengers from the non-sterile
3 area to the sterile area.
- 1 5. The system of claim 4, wherein the tray slide is coupled to a table disposed between the
2 tray slide and the screening queue.
- 1 6. The system of claim 1, wherein the tray slide includes an elevated portion.
- 1 7. The system of claim 6, further comprising a receiving portion, the receiving portion
2 adapted to receive trays and collocated with the elevated portion.
- 1 8. The system of claim 1, wherein the tray slide comprises a plurality of tray slide sections,
2 each of the plurality of tray slide sections having a similar width and coupled to at least
3 another of the plurality of tray slide sections.
- 1 9. The system of claim 2, wherein the tray conveyance comprises a roller bed.
- 1 10. The system of claim 9, wherein the roller bed comprises a plurality of wheels.

- 1 11. The system of claim 9, wherein the roller bed comprises a plurality of cylindrical rollers,
2 each of the plurality of cylindrical rollers having a longitudinal axis, and wherein the
3 longitudinal axis is the axis of rotation of the cylindrical rollers.
- 1 12. The system of claim 2, wherein the tray conveyance comprises a conveyor belt.
- 1 13. The system of claim 1, wherein the sidewall is affixed to the tray slide and operable to
2 confine the tray to the tray slide.
- 1 14. The system of claim 13, wherein the sidewall comprises at least two sidewalls, the at
2 least two sidewalls affixed to the tray slide such that each of the at least two sidewalls
3 extend substantially the entire length of the tray slide.
- 1 15. The system of claim 6, wherein the plurality of tray slide sections comprises a plurality of
2 rectangular-shaped sections, wherein each of the plurality of rectangular-shaped sections
3 has substantially similar dimensions.
- 1 16. The system of claim 8, wherein the plurality of tray slide sections form a curved tray
2 slide, wherein the curved tray slide defines a direction of travel corresponding to the
3 screening queue.
- 1 17. The system of claim 16, wherein the screening queue comprises two screening queues.
- 1 18. The system of claim 1, further comprising a means for delivering the tray to the
2 passenger.
- 1 19. The system of claim 18, wherein the means for delivering the tray comprises a plurality
2 of rollers coupled to the tray slide.
- 1 20. The system of claim 18, wherein the means for delivering the tray comprises a motorized
2 conveyor belt.
- 1 21. The system of claim 1, further comprising a table positioned between the tray slide and
2 the screening queue.

- 1 22. The system of claim 21, wherein the tray slide is coupled to the table, and wherein a
2 portion of the table is exposed between the tray slide and the screening queue.
- 1 23. The system of claim 1, further comprising a retrieval portion, the retrieval portion located
2 at a portion of the tray slide distal from the gateway.
- 1 24. The system of claim 23, further comprising an end wall, the end wall positioned at the
2 retrieval portion of the tray slide and adapted to prevent the trays from leaving an area of
3 the tray slide bounded by the end wall and the sidewalls.
- 1 25. The system of claim 23, further comprising a tray dispenser positioned at the distal end of
2 the tray slide from the gateway, the tray dispenser adapted to retain trays delivered to the
3 retrieval portion.
- 1 26. The system of claim 25, wherein the tray dispenser further comprises:
2 an aperture adapted to allow the tray to fit at least partially therethrough;
3 a platform adapted to support the tray; and
4 a support system, the support system operable to maintain the tray at a height
5 substantially constant in relation to the retrieval portion.

1 27. A system for providing security screening, comprising:

2 a tray slide, wherein the tray slide is operable to transport an article from a sterile area
3 to a non-sterile area, with entry to the sterile area requiring passage through a detection
4 device; and

5 a screening queue adjacent to the tray slide, wherein the screening queue defines a
6 path from the non-sterile area to the sterile area.

1 28. The system of claim 27, wherein the detection device is a baggage scanner, the baggage
2 scanner operable to detect prohibited items introduced to the sterile area, and wherein the
3 detector is the threshold between the sterile area and the non-sterile area.

1 29. The system of claim 28, wherein the tray slide comprises a plurality of sections, each of
2 the plurality of sections operable to be coupled to another of the plurality of sections.

1 30. The system of claim 27, wherein the tray slide comprises an elevated portion and a non-
2 elevated portion, the elevated portion operable to impart a gravitational potential energy
3 to an item placed on the conveyance at the elevated portion, the potential energy operable
4 to deliver the item through the length of the elevated portion to the non-elevated portion.

5 31. The system of claim 27, further comprising a means for propelling the article from the
6 sterile area to the non-sterile area.

7 32. The system of claim 31, wherein the means for propelling the screening tray from the
8 sterile area to the non-sterile area comprises an elevated portion of the tray slide, the
9 elevated portion operable to impart a gravitational potential energy to an article placed on
10 the elevated portion of the tray slide.

1 33. The system of claim 32, wherein the means for propelling the article comprises:
2 a plurality of rollers, wherein the plurality of rollers further comprises a rotational
3 drive mechanism for turning one of the plurality of rollers; and
4 a belt disposed around the plurality of rollers, wherein the belt rotates around the
5 plurality of rollers due to the rotational force applied to the belt from the one of the
6 plurality of rollers.

- 1 34. The system of claim 27, further comprising a table disposed between a portion of the tray
2 slide and the screening queue, wherein the tray conveyance is coupled to the table.
- 1 35. The system of claim 27, further comprising a tray dispenser, wherein the tray dispenser is
2 located adjacent to the retrieval portion.
- 1 36. The system of claim 35, wherein the tray dispenser is adapted to receive the tray from the
2 tray slide.
- 1 37. The system of claim 36, the tray dispenser further comprising:
2 an aperture adapted to allow the tray to fit at least partially therethrough;
3 a platform adapted to support the tray; and
4 a support system, the support system operable to maintain the tray at a height
5 substantially constant in relation to the retrieval portion.

1 38. A method for providing security screening comprising:

2 establishing a first screening queue to direct passengers from a non-sterile area to a
3 sterile area, the screening queue comprising a start point and passing through a sterile
4 threshold, the sterile area comprising an area to which access is controlled, wherein
5 access to the sterile area requires screening for prohibited items through the sterile
6 threshold;

7 positioning a tray slide adjacent to a divestment table, the divestment table accessible
8 from the screening queue, the tray slide comprising a sidewall;

9 placing trays into the tray slide; and

10 facilitating movement of the trays along the tray slide toward the start point of the
11 screening queue.

1 39. The method of claim 38, wherein the tray slide is coupled to the divestment table.

1 40. The method of claim 38, further comprising establishing a second screening queue,
2 wherein the tray slide is disposed between the first screening queue and the second
3 screening queue.

1 41. The method of claim 38, wherein the tray slide is operable to return trays from the sterile
2 area to the non-sterile area.

1 42. The method of claim 38, further comprising coupling a conveyor system to the tray slide.

1 43. The method of claim 42, wherein the conveyor system comprises a plurality of rollers
2 coupled to the tray slide.

1 44. The method of claim 43, wherein the plurality of rollers comprises a roller bed.

1 45. The method of claim 43, wherein the plurality of rollers comprises a plurality of skate
2 wheels.

1 46. The method of claim 43, further comprising a conveyor belt disposed around the plurality
2 of rollers.

- 1 47. The method of claim 38, wherein the tray slide is operable to return trays from a first
- 2 position in the non-sterile area to a second position in the non-sterile area, wherein the
- 3 first position is closer in proximity to the sterile threshold than the second position.

- 1 48. A system for increasing security screening efficiency comprising:
2 a gateway between a non-sterile area and a sterile area;
3 a screening queue for the sterile gateway;
4 a tray slide positioned adjacent to the screening queue, wherein the tray slide
5 comprises a tray conveyance and a support surface, wherein the tray slide is operable to
6 deliver a tray to a screening subject in the screening queue.
- 1 49. The system of claim 48, further comprising a sidewall coupled to the tray slide.
- 1 50. The system of claim 48, wherein the gateway comprises a detection apparatus, the
2 detection apparatus adapted to detect items prohibited from entering the sterile area.
- 1 51. The system of claim 50, wherein the screening queue is defined by a direction of travel,
2 the direction of travel operable, when followed, to direct passengers from the non-sterile
3 area to the sterile area.
- 1 52. The system of claim 51, wherein the tray slide is coupled to a table disposed between the
2 tray slide and the screening queue.
- 1 53. The system of claim 48, wherein the tray slide includes an elevated portion.
- 1 54. The system of claim 53, further comprising a receiving portion, the receiving portion
2 adapted to receive trays and collocated with the elevated portion.
- 1 55. The system of claim 54, wherein the tray slide comprises a plurality of tray slide sections,
2 each of the plurality of tray slide sections having a similar width and coupled to at least
3 another of the plurality of tray slide sections.
- 1 56. The system of claim 48, wherein the tray conveyance comprises a roller bed.
- 1 57. The system of claim 56, wherein the roller bed comprises a plurality of wheels.
- 1 58. The system of claim 56, wherein the roller bed comprises a plurality of cylindrical rollers,
2 each of the plurality of cylindrical rollers having a longitudinal axis, and wherein the
3 longitudinal axis is the axis of rotation of the cylindrical rollers.

- 1 59. The system of claim 48, wherein the tray conveyance comprises a conveyor belt.
- 1 60. The system of claim 49, wherein the sidewall is affixed to the tray slide and operable to
2 confine the tray to the tray slide.
- 1 61. The system of claim 60, wherein the sidewall comprises at least two sidewalls, the at
2 least two sidewalls affixed to the tray slide such that each of the at least two sidewalls
3 extend substantially the entire length of the tray slide.
- 1 62. The system of claim 53, wherein the plurality of tray slide sections comprises a plurality
2 of rectangular-shaped sections, wherein each of the plurality of rectangular-shaped
3 sections has substantially similar dimensions.
- 1 63. The system of claim 55, wherein the plurality of tray slide sections form a curved tray
2 slide, wherein the curved tray slide defines a direction of travel corresponding to the
3 screening queue.
- 1 64. The system of claim 63, wherein the screening queue comprises two screening queues.
- 1 65. The system of claim 48, further comprising a means for delivering the tray to the
2 passenger.
- 1 66. The system of claim 65, wherein the means for delivering the tray comprises a plurality
2 of rollers coupled to the tray slide.
- 1 67. The system of claim 65, wherein the means for delivering the tray comprises a motorized
2 conveyor belt.
- 1 68. The system of claim 48, further comprising a table positioned between the tray slide and
2 the screening queue.
- 1 69. The system of claim 68, wherein the tray slide is coupled to the table, and wherein a
2 portion of the table is exposed between the tray slide and the screening queue.
- 1 70. The system of claim 48, further comprising a retrieval portion, the retrieval portion
2 located at a portion of the tray slide distal from the gateway.

- 1 71. The system of claim 70, further comprising an end wall, the end wall positioned at the
2 retrieval portion of the tray slide and adapted to prevent the trays from leaving an area of
3 the tray slide bounded by the end wall and the sidewalls.
- 1 72. The system of claim 70, further comprising a tray dispenser positioned at the distal end of
2 the tray slide from the gateway, the tray dispenser adapted to retain trays delivered to the
3 retrieval portion.
- 1 73. The system of claim 72, wherein the tray dispenser further comprises:
2 an aperture adapted to allow the tray to fit at least partially therethrough;
3 a platform adapted to support the tray; and
4 a support system, the support system operable to maintain the tray at a height
5 substantially constant in relation to the retrieval portion.
- 1 74. The system of claim 48, further comprising a tray stop adapted to prevent movement of
2 trays along the tray slide.
- 1 75. The system of claim 48, wherein the tray slide forms a continuous loop.

- 1 76. A method for conducting security screening operations, comprising:
2 placing trays in a tray slide;
3 moving the trays along the tray slide toward a retrieval portion of the tray slide,
4 wherein the retrieval portion of the tray slide is located adjacent to a queue that directs a
5 screening subject from a non-sterile area to a sterile area, and wherein moving the trays
6 includes directing the trays in a direction substantially opposite to the direction in which
7 the queue directs the screening subject.
- 1 77. The method of claim 76, wherein the step of placing the trays in a tray slide includes
2 placing the trays in a receiving portion of the tray slide, the receiving portion of the tray
3 slide at a location distal from the retrieval portion of the tray slide.
- 1 78. The method of claim 77, wherein the receiving portion is located in the sterile area.
- 1 79. The method of claim 76, wherein the queue directs the screening subject from a sterile
2 area to a non-sterile area through a gateway, the gateway.